

## Poleward-moving patch of neutral atoms as observed by IMAGE LENA imager: manifestation of transient dayside reconnection?

# Keisuke Hosokawa[1]; Satoshi Taguchi[1]; Atsushi Yamazaki[1]; Akira Nakao[1]; Michael R. Collier[2]; Thomas E. Moore[2]; Akira Sessai Yukimatu[3]; Natsuo Sato[4]

[1] Univ. of Electro-Communications; [2] NASA GSFC; [3] UAP, NIPR (SOKENDAI, Polar Science); [4] NIPR

<http://gwave.ice.uec.ac.jp/~hosokawa/>

A key unsolved question concerning the dayside magnetic reconnection, both theoretically and observationally, is whether the reconnection happens in a continuous or an intermittent fashion. Most of the published literature from ground-based or in situ measurements in the cusp support the intermittent reconnection model (Flux Transfer Event model: FTE model) [Milan et al., 2000; Wild et al, 2003]. In contrast, space-based proton aurora observations with IMAGE SI-12 imager suggested that steadiness of the reconnection depends on the way that the process is driven [Frey et al., 2003]. There appears to be a considerable debate.

Recent studies have shown that the high-altitude cusp monitoring is possible with low energy neutral atom (LENA) imager on-board IMAGE satellite through charge-exchanging process between magnetosheath plasmas and neutral particles of hydrogen geocorona. In the course of survey for LENA high-latitude sheath emission we found a few clear events of poleward-moving patch. One possible interpretation for this patch is that higher-flux sheath plasmas on the newly reconnected field line exchange their charge with neutral atom of geocoronal origin effectively. In order to evaluate this interpretation, we made detailed comparison of this signature with ACE solar wind and SuperDARN radar observations at the footprint of the cusp. If our interpretation is proved to be true, it means that LENA can be used to visualize temporal evolutions of the FTE on the dayside magnetopause.